AMENDMENTS TO THE CLAIMS

Claims 1 and 2. (Canceled.)

Claim 3. (Amended.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin ~~The composition in accordance with claim 1~~, wherein the naturally occurring substrate not including gelatin is collagen, fibronectin, casein, mucin, heparan-sulfate, carrageenan, deoxyribonucleic acid, or adenosine triphosphate.

Claim 4. (Amended.) The composition in accordance with claim 3 ~~1~~, wherein the naturally occurring substrate not including gelatin is a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues.

Claim 5. (Canceled.)

Claim 6. (Previously Presented.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate via the N-terminus region of the lactoferrin, and native lactoferrin.

Claim 7. (Previously Presented.) The composition in accordance with claim 6, wherein the concentration of immobilized lactoferrin and native lactoferrin in the dispersion is from about 0.05% wt/vol to about 2.5 % wt/vol.

Claim 8. (Previously Presented.) The composition in accordance with claim 6, wherein the molar ratio of immobilized lactoferrin to native lactoferrin is a ratio of from about 1:1 to about 1:10.

Claim 9. (Previously Presented.) The composition in accordance with claim 6, wherein the molar ratio of immobilized lactoferrin to native lactoferrin is a ratio of from about 1:1 to about 1:5.

Claim 10. (Previously Presented.) The composition in accordance with claim 6, wherein the composition comprises about 1 % wt/vol immobilized lactoferrin and about 1 % wt/vol native lactoferrin.

Claim 11. (Canceled.)

Claim 12. (Amended.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin ~~The composition in accordance with claim 11~~, wherein the composition further comprises a buffer system and wherein the buffer system contains a physiologically acceptable acid, a physiologically acceptable base, and a physiologically acceptable salt.

Claim 13. (Previously Presented.) The composition in accordance with claim 12, wherein the physiologically acceptable acid is oxalic acid, ethylenediamine tetraacetic acid, carbonic acid, or citric acid; the physiologically acceptable base is sodium bicarbonate, potassium bicarbonate, sodium carbonate, or potassium carbonate; and the physiologically acceptable salt is calcium chloride, potassium chloride or sodium chloride.

Claim 14. (Previously Presented.) A composition of matter comprising an aqueous buffer solution containing a physiologically acceptable acid selected from the group consisting of oxalic acid, ethylenediamine tetraacetic acid, carbonic acid, and citric acid; a physiologically acceptable base; and a physiologically acceptable salt selected from the group consisting of calcium chloride, potassium chloride, and sodium chloride, wherein the ratio of acid to base to salt is 0.1 to 0.0001 M (acid) : 1 to 0.001 M (base) : 10 to 0.01M (salt) and containing a mixture of native lactoferrin and isolated lactoferrin immobilized on a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues, collagen, fibronectin, casein, mucin, heparan-sulfate, carrageenan, deoxyribonucleic acid, or adenosine triphosphate via the N-terminus region of the lactoferrin, in a native lactoferrin to isolated immobilized lactoferrin molar ratio of from about 1:1 to about 1:5 and in a concentration of from about 0.001 to about 2.5 % wt/vol.

Claim 15. (Previously Presented.) The composition in accordance with claim 14, wherein the lactoferrin is immobilized on a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues.

Claim 16. (Previously Presented.) The composition in accordance with claim 14, wherein the mixture comprises about 1 % wt/vol immobilized lactoferrin and about 1% wt/vol native lactoferrin.

Claim 17. (Previously Presented.) The composition in accordance with claim 14, wherein the physiologically acceptable acid is citric acid, the physiologically acceptable base is sodium bicarbonate and the physiologically acceptable salt is sodium chloride.

Claims 18 - 20. (Canceled.)

Claim 21. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method in accordance with claim 18~~, wherein the naturally occurring substrate, not including gelatin, is a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues.

Claim 22. (Canceled.)

Claim 23. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method in accordance with claim 18,~~ further comprising applying a composition containing a mixture of immobilized lactoferrin and native lactoferrin.

Claim 24. (Previously Presented.) The method in accordance with claim 23, wherein the concentration of the mixture in the composition is from about 0.001 to about 2.5% wt/vol.

Claim 25. (Previously Presented.) The method in accordance with claim 23, wherein the molar ratio of immobilized lactoferrin to native lactoferrin in the mixture is in a ratio of from about 1:1 to about 1:10.

Claim 26. (Previously Presented.) The method in accordance with claim 23, wherein the molar ratio of immobilized lactoferrin to native lactoferrin in the mixture is in a ratio of from about 1:1 to about 1:5.

Claim 27. (Previously Presented.) The method in accordance with claim 23, wherein the mixture comprises about 1 % wt/vol immobilized lactoferrin and about 1 % wt/vol native lactoferrin.

Claim 28. (Canceled.)

Claim 29. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method in accordance with claim 28~~, wherein the composition is an aqueous solution, the aqueous solution further comprises a buffer system, and the buffer system contains a physiologically acceptable acid, a physiologically acceptable base, and a physiologically acceptable salt.

Claim 30. (Previously Presented.) The method in accordance with claim 29, wherein the physiologically acceptable acid is oxalic acid, ethylenediamine tetraacetic acid, carbonic acid, or citric acid; the physiologically acceptable base is sodium bicarbonate, potassium bicarbonate, sodium carbonate, or

potassium carbonate; and the physiologically acceptable salt is calcium chloride, potassium chloride or sodium chloride.

Claims 31 and 32. (Canceled.)

Claim 33. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method in accordance with claim 18~~, wherein the microbe is a verotoxic *Escherichia coli.*

Claim 34. (Previously Presented.) The method in accordance with claim 33, wherein the verotoxic *Escherichia coli* is the serotype 0157:H7.

Claim 35. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of Claim 18~~, wherein the microbe is a *Clostridium* species.

Claim 36. (Previously Presented.) The method of Claim 35, wherein the species is *Clostridium perfringens, Clostridiumdifficile, Clostridiumbotulinum,* or *Clostridium tetani.*

Claim 37. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of Claim 18~~, wherein the microbe is a protozoan selected from the group consisting of *Entamoeba histolytica, Naegleria flowleri, Giardia lamblia, Leishmania spp., Trichomonas vaginalis, Trypanosoma spp., Plasmodium spp.,* and *Taxoplasma spp.*

Claims 38 and 39. Canceled.

Claim 40. (Previously Presented.) A method for inhibiting the microbial contamination of a composition subject to microbial contamination comprising treating the composition with an aqueous buffer solution containing a physiologically acceptable acid selected from the group consisting of oxalic acid, ethylenediamine tetraacetic acid, carbonic acid, and citric acid; a physiologically acceptable base; and a physiologically acceptable salt selected from the group consisting of calcium chloride, potassium chloride, and sodium chloride, wherein the ratio of acid to base to salt is 0.1 to 0.0001M (acid): 1 to 0.001 M (base): 10 to 0.01 M (salt) and containing a mixture of native lactoferrin and isolated lactoferrin immobilized on a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues, collagen, gelatin, fibronectin, casein, mucin, heparan-sulfate, carrageenan, deoxyribonucleic acid, or adenosine triphosphate via the N-terminus region of the lactoferrin, in a native lactoferrin to isolated immobilized lactoferrin molar ratio of from about 1:1 to about 1:5 and in a concentration of from about 0.001 to about 2.5 % wt/vol.

Claim 41. (Previously Presented.) The method in accordance with claim 40, wherein the lactoferrin is immobilized on galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues.

Claim 42. (Previously Presented.) The method in accordance with claim 40, wherein the mixture comprises about 1 % wt/vol immobilized lactoferrin and about 1 % wt/vol native lactoferrin.

Claim 43. (Previously Presented.) The method in accordance with claim 40, wherein the physiologically acceptable acid is citric acid, the physiologically acceptable base is sodium bicarbonate and the physiologically acceptable salt is sodium chloride.

Claim 44. (Previously Presented.) The method of claim 40, wherein the microbe is bacterium, a fungus, a protozoan, or a virus.

Claim 45. (Previously Presented.) The method in accordance with claim 40, wherein the microbe is enterotoxigenic *Escherichia coli,* enteropathogenic *Escherichia coli, Shigella dysenteriae, Shigella flexneri, Salmonella typhimurium, Salmonella typhi, Salmonella abony, Salmonella dublin, Salmonella enteritidis, Salmonella hartford, Salmonella kentucky, Salmonella panama, Salmonella pullorum, Salmonella rostock, Salmonella thompson, Salmonella virschow, Enterobacter aerogenes, Vibrio cholerae, Yersinia enterocolitica, Campylobacter jejuni, Aeromonas hydrophila, Staphylococcus aureus, Staphylococcus hyicus, Staphylococcus epidermidis, Staphylococcus hominis, Staphylococcus warneri, Staphylococcus xylosus, Staphylococcus chromogenes, Streptococcus pyogenes, Streptococcus pneumoniae, Streptococcus mutans, Streptococccus sanguis, Pediococcus acne, Bacillus cereus, Bacillus anthracis, Bacillus subtilis,* a *Brucella* species, *Listeria monocytogenes, Legionella pneumophila, Bordetella*

pertussis, Pseudomonas aeruginosa, Francisella tularensis, Candida albicans, Brochothrix thermospacta, Bacillus pumilus, Enterococcus faecium, Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, Prevotella intermedia, Deinococcus radiopugnans, Deinococcus radiodurans, Deinobacter grandis, Acinetobacter radioresistens, or *Methylobacterium radiotolerans.*

Claim 46. (Previously Presented.) The method in accordance with claim 40, wherein the microbe is a verotoxic *Escherichia coli.*

Claim 47. (Previously Presented.) The method in accordance with claim 46, wherein the verotoxic *Escherichia coli is* the serotype 0157:H7.

Claim 48. (Previously Presented.) The method of Claim 40, wherein the microbe is a *Clostridium sp.*

Claim 49. (Previously Presented.) The method of Claim 48, wherein the species is *Clostridium perfringens, Clostridium difficile, Clostridium botulinum,* or *Clostridium tetani.*

Claim 50. (Previously Canceled)

Claim 51. (Previously Presented.) The method in accordance with claim 40, wherein the ratio of acid to base to salt is 0.01 to 0.001 M (acid) : 0.1 to 0.01 M (base) : 1 to 0.1 M(salt).

Claims 52 - 55. (Previously Canceled)

Claim 56. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a

microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method in accordance with claim 18~~, wherein the composition subject to microbial contamination is a foodstuff.

Claim 57. (Previously Presented.) The method in accordance with claim 56, wherein the foodstuff is a meat product.

Claim 58. (Previously Presented.) The method of claim 57, wherein the meat product is a beef product, a pork product, or a poultry product.

Claim 59. (Previously Presented.) The method in accordance with claim 40, wherein the composition subject to microbial contamination is a foodstuff.

Claim 60. (Previously Presented.) The method in accordance with claim 59, wherein the composition is a meat product.

Claim 61. (Previously Presented.) The method of Claim 60, wherein the meat product is a beef product, a pork product, or a poultry product.

Claim 62. (Previously Presented.) The method of claim 57, wherein the meat product is veal, lamb, sheep, goat, elk, deer, antelope, horse, or dog.

Claim 63. (Previously Presented.) The method of claim 60, wherein the meat product is veal, lamb, sheep, goat, elk, deer, antelope, horse, or dog.

Claim 64. (Previously Presented.) The method of claim 56, wherein the foodstuff comprises a surface and/or flesh of a marine or freshwater aquatic organism.

Claim 65. (Previously Presented.) The method of claim 64, wherein the aquatic organism is a fish, mollusk, or crustacean.

Claim 66. (Previously Presented.) The method of claim 59, wherein the foodstuff comprises a surface and/or flesh of a marine or freshwater aquatic organism.

Claim 67. (Previously Presented.) The method of claim 66, wherein the aquatic organism is a fish, mollusk, or crustacean.

Claim 68. (Previously Presented.) The method of claim 56, wherein the foodstuff comprises a vegetable foodstuff.

Claim 69. (Previously Presented.) The method of claim 59, wherein the composition comprises a vegetable foodstuff.

Claim 70. (Previously Presented.) A method for reducing the microbial contamination of a meat product subject to microbial contamination by a microbe, comprising: applying to the meat product a composition containing a physiologically acceptable acid selected from the group consisting of oxalic acid, ethylenediamine tetraacetic acid, carbonic acid, and citric acid; a physiologically acceptable base; and a physiologically acceptable salt selected from the group consisting of calcium chloride, potassium chloride, and sodium chloride, wherein the molar ratio of acid to base to salt is 0.1 to 0.0001 (acid) : 1 to 0.001 (base) : 10 to 0.01 (salt) and containing a mixture of native

lactoferrin and isolated lactoferrin immobilized on a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues, collagen, gelatin, fibronectin, casein, mucin, heparan-sulfate, carrageenan, deoxyribonucleic acid, or adenosine triphosphate via the N-terminus region of the lactoferrin, in a native lactoferrin to isolated immobilized lactoferrin molar ratio of from about 1:1 to about 1:5 and in a concentration of from about 0.001 to about 2.5 % wt/vol.

Claim 71. (Previously Presented.) The method of claim 70, wherein the composition is an aqueous solution, an aqueous emulsion, a colloid, a suspension, a powder, or a granular solid.

Claim 72. (Previously Presented.) The method in accordance with claim 70, wherein the lactoferrin is immobilized on a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues.

Claim 73. (Previously Presented.) The method in accordance with claim 70, wherein the mixture comprises about 1 % wt/vol immobilized lactoferrin and about 1 % wt/vol native lactoferrin.

Claim 74. (Previously Presented.) The method in accordance with claim 70 wherein the physiologically acceptable acid is citric acid, the physiologically acceptable base is sodium bicarbonate and the physiologically acceptable salt is sodium chloride.

Claim 75. (Previously Presented.) The method of claim 70, wherein the microbe is a bacterium, a fungus, a protozoan, or a virus.

Claim 76. (Previously Presented.) The method in accordance with claim 70, wherein the microbe is enterotoxigenic *Escherichia coli,* enteropathogenic *Escherichia coli, Shigella dysenteriae, Shigella flexneri, Salmonella typhimurium, Salmonella typhi, Salmonella abony, Salmonella dublin, Salmonella enteritidis, Salmonella hartford, Salmonella kentucky, Salmonella panama, Salmonella pullorum, Salmonella rostock, Salmonella thompson, Salmonella virschow, Enterobacter aerogenes, Vibrio cholerae, Yersinia enterocolitica, Campylobacter jejuni, Aeromonas hydrophila, Staphylococcus aureus, Staphylococcus hyicus, Staphylococcus epidermidis, Staphylococcus hominis, Staphylococcus warneri, Staphylococcus xylosus, Staphylococcus chromogenes, Streptococcus pyogenes, Streptococcus pneumoniae, Streptococcus mutans, Streptococccus sanguis, Pediococcus acne, Bacillus cereus, Bacillus anthracis, Bacillus subtilis,* a *Brucella* species, *Listeria monocytogenes, Legionella pneumophila, Bordetella pertussis, Pseudomonas aeruginosa, Francisella tularensis, Candida albicans, Brochothrix thermospacta, Bacillus pumilus, Enterococcus faecium, Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, Prevotella intermedia, Deinococcus radiopugnans, Deinococcus radiodurans, Deinobacter grandis, Acinetobacter radioresistens,* or *Methylobacterium radiotolerans.*

Claim 77. (Previously Presented.) The method in accordance with claim 70, wherein the microbe is a verotoxic *Escherichia coli.*

Claim 78. (Previously Presented.) The method in accordance with claim 77, wherein the verotoxic *Escherichia coli* is the serotype 0157: H7.

Claim 79. (Previously Presented.) The method of claim 70, wherein the microbe is a *Clostridium* species.

Claim 80. (Previously Presented.) The method of claim 79, wherein the species is *Clostridium perfringens, Clostridium difficile, Clostridium botulinum,* or *Clostridium tetani.*

Claim 81. (Previously Presented.) The method in accordance with claim 70 wherein the concentration of lactoferrin on the surface of the meat product is from about 0.0001 to about 10 mg /sq. inch.

Claim 82. (Previously Presented.) The method in accordance with claim 70, wherein the concentration of lactoferrin on the surface of the meat product is from about 0.01 to about 1 mg/sq. inch.

Claim 83. (Previously Presented.) The method in accordance with claim 70, wherein the meat product is a beef product, a pork product, or a poultry product.

Claim 84. (Previously Presented.) The method of claim 70, wherein the meat product is veal, lamb, sheep, goat, elk, deer, antelope, horse, or dog.

Claim 85. (Previously Presented.) A foodstuff containing: isolated lactoferrin immobilized on a naturally occurring substrate via the N-terminus region of the lactoferrin in a concentration between about 0.0001 and about 10 mg per gram of the foodstuff.

Claim 86. (Canceled.)

Claim 87. (Amended.) The foodstuff of Claim 85 ~~86~~, wherein the foodstuff ~~meat product~~ is a beef product, a pork product, or a poultry product.

Claim 88. (Amended.) The foodstuff of claim 85 ~~86~~, wherein the foodstuff ~~meat product~~ is veal, lamb, sheep, goat, elk, deer, antelope, horse, or dog.

Claim 89. (Amended.) The foodstuff of claim 85 ~~86~~, wherein the foodstuff comprises a surface and/or flesh of a marine or freshwater aquatic organism.

Claim 90. (Previously Presented.) The foodstuff of claim 89, wherein the aquatic organism is a fish, mollusk, or crustacean.

Claim 91. (Previously Presented.) The foodstuff of claim 85, wherein the foodstuff comprises a vegetable foodstuff.

Claim 92. (Previously Presented.) The foodstuff of claim 86, wherein said foodstuff is a packaged foodstuff.

Claim 93. (Previously Presented.) A method of inhibiting the growth and/or adhesion of a microbial species on a foodstuff, comprising: treating a food-contacting surface of a material for food packaging or food handling with an isolated lactoferrin immobilized on a naturally occurring substrate via the N-terminus region of the lactoferrin; and contacting a foodstuff with said surface, whereby the growth and/or adhesion of a microbial species on said foodstuff is inhibited.

Claim 94. (Previously Presented.) The method of Claim 93, wherein said food packaging or handling material is a cellulosic polymer.

Claim 95. (Previously Presented.) The method of Claim 93, wherein said food packaging or handling material is paper, wood, or cardboard.

Claim 96. (Previously Presented.) The method of Claim 93, wherein said food-contacting surface comprises a surface belonging to a shear wrap, a cellophane, a wrapping paper, a waxed paper, a bag, a carton, a box, a tray, a plate, a bowl, a food storage vessel, a serving dish, a cup, a bin, a jar, or a bottle.

Claim 97. (Previously Presented.) The method of Claim 97, wherein said food-contacting surface comprises a surface belonging to a glove, a mitt, a fork, a spoon, a knife, a slicer, a tong, a ladle, a scoop, a cup, a processor, a juicer, a grinder, a press, a hook, a chipper, a peeler, a cutter, a screw, an opener, a chute, a spatula, a cutting board, a kneading board, a rack, or a shelf.

Claim 98. (Previously Presented.) A food container or food-handling implement, said container or implement having a food-contacting surface, said surface treated with an isolated lactoferrin immobilized on a naturally occurring substrate via the N-terminus region of the lactoferrin in an amount effective to inhibit the growth and/or adhesion of a microbial species on said surface.

Claim 99. (Previously Presented.) The food container or food-handling implement of Claim 98, wherein said container or implement is a shear wrap, a cellophane, a wrapping paper, a waxed paper, a bag, a carton, a box, a tray, a plate, a bowl, a food storage vessel, a serving dish, a cup, a bin, a jar, a bottle, a glove, a mitt, a fork, a spoon, a knife, a slicer, a tong, a ladle, a scoop, a processor, a juicer, a grinder, a press, a hook, a chipper, a screw, a cutter, a

peeler, an opener, a chute, a spatula, a cutting board, a kneading board, a rack, or a shelf.

Claim 100. (Previously Presented.) The food container or food-handling implement of Claim 98, having an amount of between about 0.0001 to about 10 mg /square inch of said food-contacting surface.

Claims 101 - 104. (Canceled.)

105. (Amended.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin; and at least one pharmaceutically acceptable carrier ~~The composition in accordance with claim 102~~, wherein the naturally occurring substrate is a galactose-rich polysaccharide comprising mainly galactose residues and derivatized galactose residues.

Claim 106. (Canceled.)

Claim 107. (Amended.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin; and at least one pharmaceutically acceptable carrier ~~The composition in accordance with claim 102~~, further comprising native lactoferrin.

Claim 108. (Previously Presented.) The composition in accordance with claim 107, wherein the concentration of immobilized lactoferrin and native lactoferrin in the dispersion is from about 0.05% wt/vol to about 2.5 % wt/vol.

Claim 109. (Previously Presented.) The composition in accordance with claim 107, wherein the molar ratio of immobilized lactoferrin to native lactoferrin is a ratio of from about 1:1 to about 1:10.

Claim 110. (Previously Presented.) The composition in accordance with claim 107, wherein the molar ratio of immobilized lactoferrin to native lactoferrin is a ratio of from about 1:1 to about 1:5.

Claim 111. (Previously Presented.) The composition in accordance with claim 107, wherein the composition comprises about 1 % wt/vol immobilized lactoferrin and about 1 % wt/vol native lactoferrin.

Claim 112. (Previously Presented.) The composition in accordance with claim 107, wherein the composition further comprises a buffer system.

Claim 113. (Previously Presented.) The composition in accordance with claim 112, wherein the buffer system contains a physiologically acceptable acid, a physiologically acceptable base, and a physiologically acceptable salt.

Claim 114. (Previously Presented.) The composition in accordance with claim 113, wherein the physiologically acceptable acid is oxalic acid, ethylenediamine tetraacetic acid, carbonic acid, or citric acid; the physiologically acceptable base is sodium bicarbonate, potassium bicarbonate, sodium carbonate, or potassium carbonate; and the physiologically acceptable salt is calcium chloride, potassium chloride or sodium chloride.

Claims 115 - 117. (Canceled.)

Claim 118. (Previously Presented.) The composition in accordance with claim 14, wherein the molar ratio of acid to base to salt is 0.01 to 0.001 M (acid): 0.1 to 0.01 M (base) : 1 to 0.1 M(salt).

Claim 119. (Amended.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin; and at least one pharmaceutically acceptable carrier ~~The composition of claim 102~~, wherein the composition is formulated in a cosmetic, a cleanser, a food supplement, or a medicament.

Claim 120. (Amended.) A composition of matter comprising a dispersion of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin; and at least one pharmaceutically acceptable carrier ~~The composition of claim 102~~, wherein the cosmetic, cleanser, food supplement, or medicament is formulated for applying to an external surface of a vertebrate subject.

Claim 121. (Previously Presented.) The composition of claim 120, wherein the vertebrate subject is a human.

Claim 122. (Previously Presented.) The composition of claim 120, wherein the vertebrate subject is a non-human vertebrate.

Claim 123. (Previously Presented.) The composition of claim 119, wherein the cleanser is formulated as a pharmaceutically acceptable skin cleanser.

Claim 124. (Canceled.)

Claim 125. (Amended.) The composition of claim 119 ~~124~~, wherein the medicament is formulated in ~~said delivery system is~~ ~~an~~ pharmaceutically acceptable injection, intravenous drip, inhalant, or implant delivery system.

Claims 126 -129. (Canceled.)

Claim 130. (Amended.) The composition of claim 119 ~~124~~, wherein the medicament is formulated in ~~said delivery system comprises~~ ~~an~~ pharmaceutically acceptable adhesive patch.

Claims 131 - 138. (Canceled.)

Claim 139. (Amended.) The composition of claim 119 ~~138~~, wherein the medicament is formulated in a ~~the~~ tablet or capsule having ~~comprises~~ a controlled release coating.

Claim 140. (Amended.) The composition of claim 119 ~~138~~, wherein the medicament is formulated in an ~~The~~ ingestive delivery system having ~~comprises~~ an enteric coating to prevent esophageal or gastric release of immobilized lactoferrin.

Claim 141. (Amended.) The composition of claim 119 ~~124,~~ wherein the medicament is formulated in ~~the delivery system comprises~~ a lavage or enema.

Claims 142 - 151. (Canceled.)

Claim 152. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 151~~, wherein said treating includes administering to a human said composition by ~~non-systemic delivery route is~~ a pharmaceutically acceptable urogenital, rectal, or colonic delivery route.

Claims 153 and 154. (Canceled.)

Claim 155. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 154~~ wherein said treating includes administering to a human said composition ~~systemic delivery route is~~ by pharmaceutically acceptable ingestion, injection, intravenous drip, inhalant, or implant.

Claim 156. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 154~~ wherein said treating

includes administering to a human said composition by ~~systemic delivery route is~~ a pharmaceutically acceptable transdermal delivery route.

Claim 157. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 154~~ wherein said treating includes administering to said human said composition by ~~systemic delivery route is~~ a pharmaceutically acceptable transmucosal delivery route.

Claim 158. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 154~~, wherein the microbial contamination of a human to be reduced is in the gastrointestinal system of the human.

Claim 159. (Canceled.)

Claim 160. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 159~~, wherein treating further

comprises administering to a human ~~the probiotic agent is~~ a species of *Bifidobacterium, Streptococcus, Pediococcus, Lactococcus,* or *Lactobacillus* in conjunction with the immobilized lactoferrin by a pharmaceutically acceptable delivery route.

Claim 161. (Previously Presented.) The method of claim 160, wherein the probiotic agent is *Bifidobacterium bifidum, Bifidobacterium longum, Bifidobacterium animalis, Streptococcus lactis, Streptococcus cremoris, Streptococcus thermophilus, Pediococcus pentoseus, Lactococcus lactis, Lactobacillus acidophilus, Lactobacillus rhamnosus, Lactobacillus plantarum, Lactobacillus reuteri, Lactobacillus bulgaricus, Lactobacillus paracasei,* or *Lactobacillus casei.*

Claims 162 - 165. (Canceled.)

Claim 166. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method in accordance with claim 149~~, wherein said composition subject to microbial contamination is a human and wherein the microbe is a verotoxic *Escherichia coli.*

Claim 167. (Previously Presented.) The method in accordance with claim 166, wherein the verotoxic *Escherichia coli* is the serotype 0157:H7.

Claim 168. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a

microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 149~~, wherein said composition subject to microbial contamination is a human and wherein the microbe is a *Clostridium* species.

Claim 169. (Previously Presented.) The method of claim 168, wherein the species is *Clostridium perfringens, Clostridium difficile, Clostridium botulinum, or Clostridium tetani.*

Claim 170. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination ~~The method of claim 149~~, wherein said composition subject to microbial contamination is a human and wherein the microbe is a protozoan selected from the group consisting of *Entamoeba histolytica, Naegleria flowleri, Giardia lamblia, Leishmania spp., Trichomonas vaginalis, Trypanosoma spp., Plasmodium spp.*, or *Taxoplasma spp.*

Claims 171 - 197. (Canceled.)

Claim 198. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce

microbial contamination, wherein said composition subject to microbial contamination is a biological surface or a biological fluid and ~~The method of claim 197,~~ wherein the fluid is a culture medium.

Claim 199. (Amended.) A method for reducing the microbial contamination of a composition subject to microbial contamination by a microbe, comprising: treating the composition with a sufficient amount of isolated lactoferrin immobilized on a naturally occurring substrate not including gelatin via the N-terminus region of the lactoferrin to reduce microbial contamination, wherein said composition subject to microbial contamination is a biological surface or a biological fluid ~~The method of claim 197,~~ and wherein the biological surface or fluid is in vitro.

Claims 200 - 202. (Canceled.)

Claim 203. (Previously Canceled.)